AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (currently amended) An apparatus for separating and purifying nucleic acids comprising an integral monolith structure, wherein macro-pores continuously extending from one end of the monolith structure to the other end and corresponding to the sizes of nucleic acids are provided and configured so that nucleic acids corresponding to the macro-pores can be retained respectively by allowing a solution containing nucleic acids to be separated to pass therethrough, wherein the diameter range of the ~~micropores~~ macro-pores is selected according to the size of the nucleic acid to be purified and wherein the size range is selected from the group consisting of diameters of about 10 nanometers (nm) to about 100 nm, diameters of about 100 nm to about 1 micrometers (μm), diameters of about 1 μm to about 10 μm, and diameters of about 10 μm to about 100 μm, and further wherein the monolith structure is capable of adsorbing nucleic acids in the presence of potassium ions and is capable of releasing nucleic acids in an essentially salt-free solution.

2. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 1, wherein the monolith structure employs a glass, a silica or a hybrid material containing an organic material and a glass or a silica, which is a porous body having macro-pores penetrating from an upper surface to a lower surface.

3. (previously presented)The apparatus for separating and purifying nucleic acids according to claim 2, wherein the porous body of the monolith structure has micro-pores in the macro-pores.

4. (currently amended) The apparatus for separating and purifying nucleic acids according to claim 3, wherein the porous body of the monolith structure has a micro-pore size ~~of greater than zero and~~ less than or equal to 100 nm.

5. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 1, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

6. (previously presented)The apparatus for separating and purifying nucleic acids according to claim 1, wherein the apparatus employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

7. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 1, characterized in that the porous body of the monolith structure has micro-pores in the macro-pores.

8. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 1, wherein the porous body of the monolith structure additionally has a micro-pore size of 100 nm or less.

9. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 2, wherein the porous body of the monolith structure additionally has a micro-pore size of 100 nm or less.

10. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 2, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

11. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 3, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

12. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 4, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

13. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 2, wherein the apparatus employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

14. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 3, wherein the apparatus employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

15. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 4, wherein the apparatus employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

16. (previously presented) The apparatus for separating and purifying nucleic acids according to claim 5, wherein the apparatus employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

17. (withdrawn, currently amended) A method for separating and purifying nucleic acids comprising a step of using an integral monolith structure, wherein macro-pores continuously extending from one end of the monolith structure to the other end and corresponding to the sizes of nucleic acids are provided and configured so that nucleic acids corresponding to the macro-pores can be retained respectively by allowing a solution containing nucleic acids to be separated to pass therethrough, wherein the

macro-pores are selected according to the size of the nucleic acid to be purified, such that macropores having a diameter of about 10 nanometers (nm) to about 100 nm are present for separating and purifying nucleic acids of about 35 base pairs (bp) to about 300 bp, macro-pores having a diameter of about 100 nm to about 1 micrometers (μm) are present for separating and purifying nucleic acids with about 300 bp to about 3 kilobase pairs (Kbp), macro-pores having a diameter of about 1 μm to about 10 μm are present for separating and purifying nucleic acids with about 3 Kbp to about 30 Kbp, and macro-pores having a diameter of about 10 μm to about 100 μm are present for separating and purifying nucleic acids with about 30 Kbp to about 300 Kbp, and further wherein the monolith structure is capable of adsorbing nucleic acids in the presence of potassium ions and is capable of releasing nucleic acids in an essentially salt free solution.

18. (withdrawn) The method for separating and purifying nucleic acids according to claim 17, wherein the monolith structure employs a glass, a silica or a hybrid material containing an organic material and a glass or a silica, which is a porous body having macro-pores (through-pores) penetrating from an upper surface to a lower surface.

19. (withdrawn) The method for separating and purifying nucleic acids according to claim 17, wherein the porous body of the monolith structure has micro-pores in the macro-pores.

20. (withdrawn) The method for separating and purifying nucleic acids according to claim 18, wherein the porous body of the monolith structure has micro-pores in the macro-pores.